25X1

TABLE OF CONTENTS

Item		Page
1	The 5-3-3-5 and 9-5-5-9 Antennas at Komsomolsk, Khabarovsk, Tashkent and Tyura Tam.....	1

25X2

25X1

1. The 5-3-3-5 and 9-5-5-9 Antennas at Komsomolsk, Khabarovsk, Tashkent and Tyura Tam:

[redacted] [redacted] photography has revealed large communications facilities at Khabarovsk, Tashkent, Tyura Tam and Komsomolsk. These communication installations have antenna farms which include the usual rhombic antennas plus unusual configurations of poles in a rectangular layout. For convenience these rectangular arrangements are called 5-3-3-5 and 9-5-5-9 thus describing the numbers of poles in each row as shown in Fig. 1. 25X1 25X1

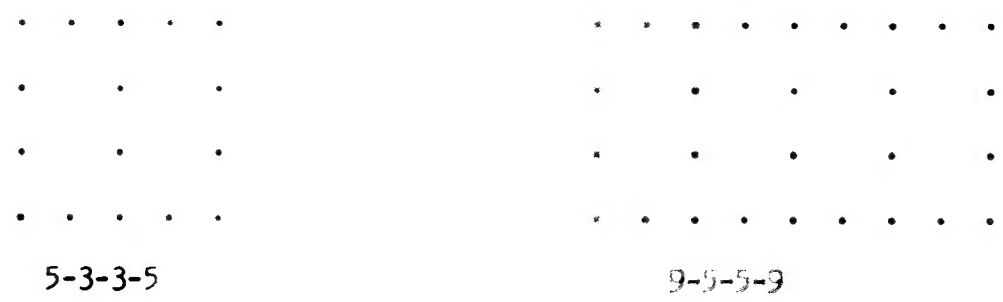

Fig. 1.

While these antennas evidently are used for high-frequency radio communications, their characteristics were not recognized immediately. A subsequent survey of technical literature of both the USSR and the US has revealed that these pole configurations (5-3-3-5 and 9-5-5-9) are identical with the supporting structure of a form of travelling wave antennas called "fishbone" in technical literature. The advantage of this type of antenna is that it permits efficient, high-frequency operation employing short

FOUR-BAY FISHBONE ANTENNA

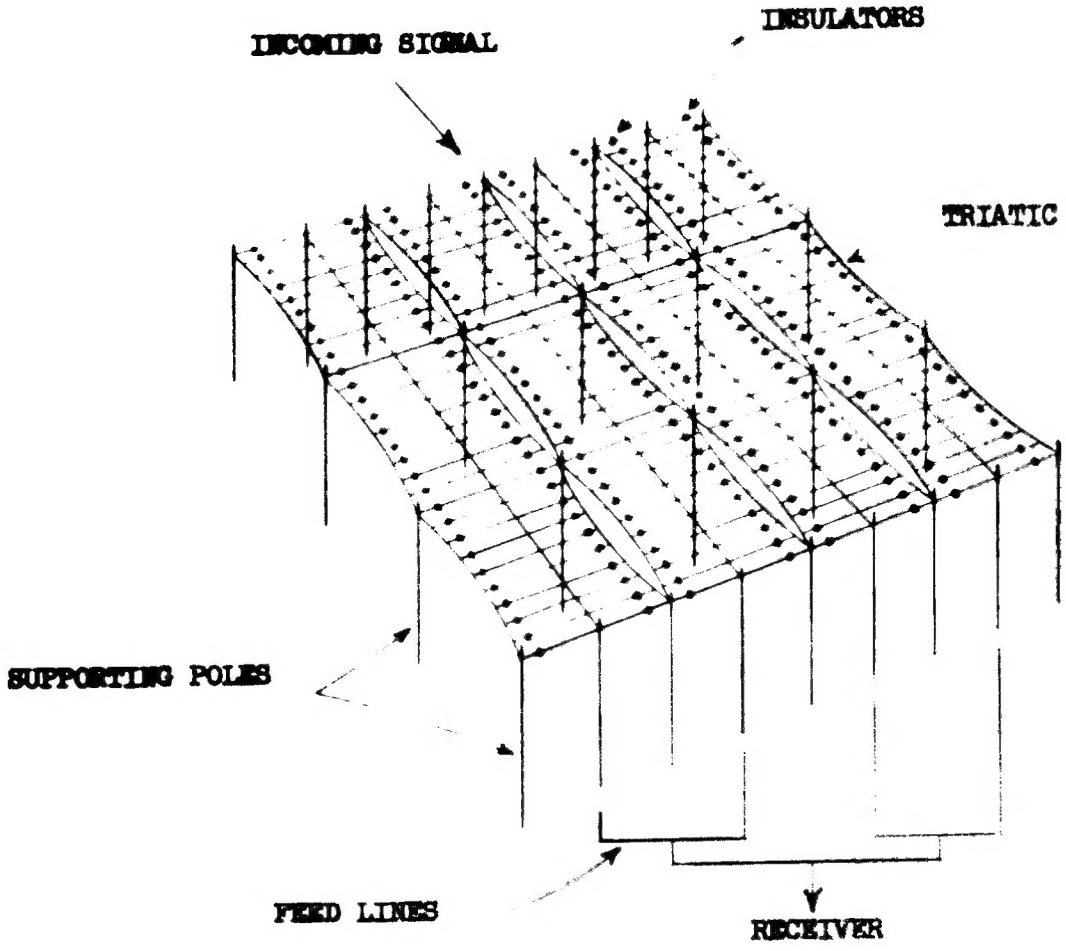

Fig. 2.

The "fishbone" antenna is a high-frequency receiving antenna and is a special form of a travelling wave antenna. It consists of a series of dipoles arranged in collinear pairs, loosely coupled to a transmission line at equal intervals by small capacitances. The transmission line runs horizontally in the direction of the incoming signal. The dipole elements are short enough to be non-resonant within the frequency range of the array and are spaced near enough together to provide a uniforma loading of the transmission line. The dipoles are capacitively coupled to the transmission line to keep the propagation velocity of the line above ninety percent of free space. The end of the transmission line toward the transmitting station is terminated in a non-inductive resistance equal to the characteristic impedance of the line, which is about 400 ohms.

Next 3 Page(s) In Document Denied